

Mateusz Radlinski, Ph.D., P.E.
Senior Engineer

Professional Profile

Dr. Mateusz Radlinski is a Senior Engineer in Exponent's Buildings and Structures practice, where he specializes in concrete and cement-based materials. He has experience in evaluation of mechanical and durability-related properties of concrete including shrinkage cracking susceptibility, transport properties, corrosion, and freeze-thaw resistance. Dr. Radlinski has investigated failures of concrete and cementitious materials in a wide range of structures and applications including building components, industrial floors, pavements, chimneys, water structures, deep foundations, asbestos-cement pipe, tile, and stucco. Dr. Radlinski has also characterized chemical composition and physical properties of concrete constituents, particularly those related to durability. He has specific expertise with concrete mix optimization, modeling of concrete properties and concrete sustainability.

Dr. Radlinski's experience in the gas pipeline industry includes a year-long effort to assist a large gas utility company with the implementation of a plan to validate the Maximum Allowable Operating Pressure (MAOP) for its gas transmission lines.

Prior to joining Exponent, Dr. Radlinski was a research assistant at Purdue University, where he was involved in several research projects funded by the Indiana Department of Transportation administered through the Joint Transportation Research Program. These projects dealt with optimization of ternary cementitious systems (containing fly ash and silica fume) for bridge deck concrete, investigation into the causes for premature deterioration of joints in rigid pavement, instrumentation and monitoring of structural behavior of prestressed high-strength concrete girders and high-performance concrete bridge deck, and field installation and performance assessment of commercial rapid-setting repair materials.

During his M.S. program Dr. Radlinski studied the design of steel, reinforced concrete and timber structures. The focus of his M.S. thesis was on reliability-based optimization of spatial trusses.

Academic Credentials and Professional Honors

Ph.D., Civil Engineering, Purdue University, 2008
M.S., Civil Engineering, Szczecin University of Technology, Poland, 2004

Hugh W. and Edna M. Donnan Scholarship, 2008; Purdue University Graduate Student Award for Outstanding Teaching, 2008; Magoon Outstanding Teaching Assistant Award, 2008; William L. Dolch Graduate Scholarship for Outstanding Research in Materials Science, 2006; Polish Ministry of Infrastructure Distinguished Thesis Award for Master's Thesis, 2005

Licenses and Certifications

Registered Professional Civil Engineer, California, # 77089

Languages

Polish

Publications

Radlinski M, Olek J. Investigation into the synergistic effects in ternary cementitious systems containing Portland cement, fly ash and silica fume. *Cement and Concrete Composites* 2012; 34(4):451–459.

Radlinski M, Moncarz P, Harris N. Concrete spalling in slip-form constructed industrial chimney. *Proceedings, Awarie Budowlane, 25th Engineering Conference on Construction Failures*, pp. 1037–1044, Szczecin-Miedzyzdroje, Poland, May 24–27, 2011.

Radlinski M, Harris N, Moncarz P. Sustainable concrete: Impacts of existing and emerging materials and technologies on the construction industry. *Proceedings, 2011 Architectural Engineering National Conference*, pp. 252–262, Oakland, CA, March 30–April 2, 2011.

Radlinski M, Olek J, Nantung T. Shrinkage and cracking of ternary concrete under various curing conditions. *Concrete International* 2011; 33(1):49–55.

Radlinski M, Olek J, Nantung T. Development and application of maturity method for prediction of concrete's resistance to chloride ion penetration. *Transportation Research Record*, Vol. 2164, Transportation Research Board of the National Academies, pp. 105–112, Washington D.C., 2010.

Radlinski M, Olek J, Zhang Q, Peterson K. Evaluation of the critical air-void system parameters for freeze-thaw resistant ternary concrete using the manual point-count and the flatbed scanner methods. *Journal of ASTM International* 2010; 7(4).

Peterson K, Sutter L, Radlinski M. The practical application of a flatbed scanner for air-void characterization of hardened concrete. *Journal of ASTM International* 2009; 6(9).

Radlinski M, Olek J. Assessing the critical air-void system parameters for freeze-thaw resistant ternary concrete using the manual point-count and a flatbed scanner. *88th Annual Transportation Research Board Meeting (CD-ROM)*, TRB, Washington, D.C., 2009.

Radlinski M, Olek J, Nantung T. Influence of curing conditions on strength development and strength predictive capability of maturity method. *Laboratory and field-made ternary concretes. Transportation Research Record*, Vol. 2080, Transportation Research Board of the National Academies, pp. 49–58, Washington D.C., 2008.

Radlinski M. Evaluation of applicability of ternary OPC/FA/SF binder systems for bridge deck concrete. Ph.D. Dissertation, Purdue University, West Lafayette, IN, December 2008.

Radlinski M, Olek J, Nantung T. Effect of mixture composition and initial curing condition on scaling resistance of ternary (OPC/FA/SF) concrete. *Journal of Materials in Civil Engineering* 2008; 20(10):668–677.

Radlinski M, Olek J, del Mar Arribas M, Rudy A, Nantung T, Byers M. Influence of air-void system parameters on freeze-thaw resistance of pavement concrete—Lessons learned from field and laboratory observations. *Proceedings, 9th International Conference on Concrete Pavements*, pp. 824–83, San Francisco, CA, August 17–21, 2008.

Radlinski M, Olek J, Nantung T. Evaluation of transport-related properties of ternary (OPC/FA/SF) concrete mixtures using migration- and absorption-type tests. *Proceedings, 9th CANMET/ACI Conference on Fly Ash, Silica Fume, Slag, and Natural Pozzolans in Concrete, SP-242, ACI*, pp. 281–497, 2007.

Radlinski M, Olek J, Zander A, Nantung T. Influence of production method and curing conditions on chloride transport, strength and drying shrinkage of ternary mix concrete, transport properties and concrete quality. *Materials Science of Concrete Special Volume, American Ceramics Society, Wiley & Sons*, pp. 215–229, 2007.

Olek J, Radlinski M, del Mar Arribas M. Premature deterioration of joints in selected Indiana Portland cement concrete pavements. *Proceedings, XXIII Conference Awarie Budowlane, Uczelniane Politechniki Szczecinskiej*, pp. 859–868, 2007.

Radlinski M, Olek J, Kim H, Nantung T, Zander A. Preliminary optimization analysis of ternary mixtures for bridge decks. *Proceedings, International Symposium Brittle Matrix Composites*, pp. 161–174, Warsaw, Poland, October 23–25, 2006.

Paczkowski WM, Radlinska A, Radlinski M, Radlinski L. Quasi-evolutional polyoptimization of a barrel vault spatial truss. *Proceedings, XXII National Conference on Polyoptimization and Computer Aided Design*, pp. 144–151, Mielno, Poland, June 2004.

Badower A, Radlinska A, Radlinski M, Radlinski L. Stochastic character of cross sections of bars catalogue. *Proceedings, National Conference on Polyoptimization and Computer Aided Design*, pp. 11–12, Mielno, Poland, June 2004.

Paczkowski WM, Radlinska A, Radlinski M, Radlinski L. Polyoptimization analysis of a barrel vault spatial truss. *Proceedings, 3rd International Conference of Students Scientific Groups*, pp. 33–39, Siedlce, Poland, September 2004.

Radlinski M, Radlinska A. Optimization of the spatial truss with random decision variables. M.S. Thesis, Szczecin University of Technology, Poland, 2004. (In Polish).

Presentations

Radlinski M, Moncarz P, Harris N. Concrete spalling in slip-form constructed industrial chimney. *Awarie Budowlane, 25th Engineering Conference on Construction Failures, Szczecin-Miedzyzdroje, Poland, May 24–27, 2011. (In Polish).*

Radlinski M, Harris N, Moncarz P. Sustainable concrete: impacts of existing and emerging materials and technologies on the construction industry. *2011 Architectural Engineering National Conference, Oakland, CA, March 30–April 2, 2011.*

Harris N, Radlinski M, Lyons T. Asbestos–cement pipe condition assessment and development of methodology for optimum replacement in water distribution systems. *2010 American Water Works Association Distribution Systems Symposium and Exposition, National Harbor, MD, September 19–22, 2010.*

Radlinski M, Olek J, del Mar Arribas M, Rudy A, Nantung T and Byers M. Influence of air-void system parameters on freeze-thaw resistance of pavement concrete—Lessons learned from field and laboratory observations. *9th International Conference on Concrete Pavements, San Francisco, CA, August 17–21, 2008.*

Radlinski M, Olek J, del Mar Arribas M, Rudy A, Nantung T, Byers M. Investigation into causes of premature deterioration of joints in PCC pavements in Indiana. *2008 PCCP Workshop & Expo, Indianapolis, IN, February 5–6, 2008.*

Radlinski M, Olek J, Nantung T. Influence of curing conditions on strength development and strength predictive capability of maturity method for laboratory and field-made ternary concretes. *87th TRB Annual Meeting, Washington, D.C., January 13–17, 2008.*

Radlinski M, Olek J, Frosch R, Zander A, Nantung T. INDOT experience with use of HPC for bridge decks. *Crack Free Bridge Deck Workshop, Indianapolis, IN, October 4, 2007.*

Radlinski M, Olek J, Radlinski M, del Mar Arribas M. The causes of premature deterioration of joints in Portland cement concrete pavements in Indiana. *23rd Engineering Conference on Construction Failures, Szczecin-Miedzyzdroje, Poland, May 23–26, 2007. (In Polish).*

Radlinski M, Olek J, Nantung T. Evaluation of transport-related properties of ternary (OPC/FA/SF) concrete mixtures using migration- and absorption-type tests. *9th CANMET/ACI Conference on Fly Ash, Silica Fume, Slag and Natural Pozzolans in Concrete, Warsaw, Poland, May 20–25, 2007.*

Radlinski M, Olek J, Kim H, Nantung T, Zander A. Preliminary optimization analysis of ternary mixtures for bridge decks. *International Symposium “Brittle Matrix Composites 8,” Warsaw, Poland, October 23–25, 2006.*

Radlinski M, Olek J, Zander A, Nantung T. Influence of production method and curing conditions on chloride transport, strength and drying shrinkage of ternary mix concrete. Transport Properties & Concrete Quality Workshop, Arizona State University, Phoenix, AZ, October 10–12, 2005.

Poster Presentations

Radlinski M, Olek J, Nantung T. Development and application of maturity method for prediction of concrete's resistance to chloride-ion penetration. 89th TRB Annual Meeting, Washington, D.C., January 10–14, 2010.

Radlinski M, Olek J, Zhang Q. Assessing critical air-void system parameters for freeze-thaw resistant ternary concrete using manual point-count method and flatbed scanner. 88th TRB Annual Meeting, Washington, D.C., January 11–15, 2009.

Radlinski M, Olek J, Nantung T. Effect of curing method on properties of ternary (OPC/FA/SF) concrete. 9th International Conference on Concrete Pavements, San Francisco, CA, August 17–21, 2008.

Radlinski M, Olek J, del Mar Arribas M, Rudy A, Nantung T, Byers M. Influence of air-void system parameters on freeze-thaw resistance of pavement concrete—Lessons learned from field and laboratory observations. 87th TRB Annual Meeting, Washington, D.C., January 13–17, 2008.

Radlinski M, Olek J, Nantung T. Effect of mixture composition and initial curing condition on early and late age scaling resistance of ternary (OPC/FA/SF) mixtures. 86th TRB Annual Meeting, Washington, D.C., January 21–25, 2007.

Radlinski M, Olek J, Nantung T. Using maturity method to estimate the resistance of HPC to chloride-ion penetration. Semiannual ACBM Meeting, Evanston, IL, November 2007.

Radlinski M, Kim H, Olek J and Nantung T. Preliminary optimization analysis of ternary HPC mixtures for bridge decks. Semiannual ACBM Meeting, Chicago, IL, September 2006.

Peer Reviewer

- ASCE Journal of Materials in Civil Engineering
- Cement and Concrete Composites
- RILEM Materials and Structures
- Transportation Research Board

Professional Affiliations

- American Society of Civil Engineers
- American Concrete Institute
- Transportation Research Board Committee on Properties of Concrete (AFN20)